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REMARKS

Claims 1 – 20 are pending in the present Application. Claims 1 – 7 have been withdrawn from consideration, Claims 8 -- 10 and 17 -- 20 have been cancelled, Claims 21 – 25 have been added, leaving Claims 11 – 16 and 21 – 25 for consideration upon entry of the present Amendment.

Claims 21 - 25 have been added to further claim the present invention. Support for these new claims can at least be found in the specification and claims as originally filed, such as in Claims 11 – 16.

No new matter has been introduced by these amendments or new claims. Reconsideration and allowance of the claims are respectfully requested in view of the above amendments and the following remarks.

Claim Rejections Under 35 U.S.C. § 103(a)

Claims 11-16 stand rejected under 35 U.S.C. § 103(a), as allegedly unpatentable over U.S. Patent No. 6,036,827 to Andrews et al. in view of JP Patent No. 401066537 to Ono et al. Applicants respectfully traverse this rejection.

The Examiner contends that Andrews et al. teach a process for operating an electrochemical system comprising:

introducing water to an electrolysis cell;

producing hydrogen;

separating hydrogen from water in the hydrogen/water separator;

introducing environmental gas disposed around the electrochemical system components to the hydrogen gas detector; and

determining the hydrogen concentration in the environmental gas.

(Office Action, page 3) It is admitted, however, that Andrews et al. fail to teach "calibrating a hydrogen gas detector by passing a hydrogen-free gas through a first conduit to the hydrogen detector, wherein the wherein the hydrogen gas detector generates a first signal; flowing a known quantity of hydrogen gas from a hydrogen/water separator through a second conduit to the hydrogen gas detector, wherein the hydrogen gas detector generates a second signal

corresponding to a percentage of the hydrogen gas in the mixture; and calibrating the hydrogen gas detector based upon the first and second signals. *Id.*

Due to the lack of teaching of Andrews et al., Ono et al. is relied upon to allegedly teach a method of calibrating a hydrogen gas detector. It is alleged that Ono et al. teach

> passing the hydrogen-containing gas to a hydrogen detector, wherein the hydrogen gas detector generates a first signal; flowing other concentrations known concentrations [*sic*] of hydrogen gas with a non-hydrogen gas (equivalent to the hydrogen free gas mixed with hydrogen in the instant application) to the hydrogen gas detector, wherein the hydrogen gas detector generates a second signal corresponding to a percentage of the hydrogen gas in the mixture; and calibrating the hydrogen gas detector based upon the signals. Other points of calibration are recorded. The reference does not teach the method at applied temperatures or pressures.

(Office Action, pages 3 – 4)

For an obviousness rejection to be proper, the Examiner must meet the burden of establishing a *prima facie* case of obviousness, i.e., that all elements of the invention are disclosed in the prior art; that the prior art relied upon, coupled with knowledge generally available in the art at the time of the invention, contain some suggestion or incentive that would have motivated the skilled artisan to modify a reference or combined references; and that the proposed modification of the prior art had a reasonable expectation of success, determined from the vantage point of the skilled artisan at the time the invention was made. *In re Fine*, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988); *In Re Wilson*, 165 U.S.P.Q. 494, 496 (C.C.P.A. 1970); *Amgen v. Chugai Pharmaceuticals Co.*, 927 U.S.P.Q.2d, 1016, 1023 (Fed. Cir. 1996).

The present application addresses the issue of calibrating a hydrogen detector in an electrochemical cell system. As discussed in the Brief Description of the Related Art, the sensitivity and accuracy of hydrogen gas detectors drift over time. The present system and method allow the hydrogen detector to be calibrated to adjust for the drift. The taught and claimed method comprises: passing a hydrogen-free gas through a first conduit to the hydrogen detector, wherein the hydrogen gas detector generates a first signal; flowing a known quantity of hydrogen gas from a hydrogen/water separator through a second conduit to the hydrogen gas detector, wherein the hydrogen gas detector generates a second signal corresponding to a percentage of the hydrogen gas in the mixture; and calibrating the hydrogen gas detector based

upon the first and second signals. This claim, therefore, requires the use of both a hydrogen-free gas and a known quantity hydrogen gas.

As admitted in the Office Action, Andrews et al. do not discuss calibration of the hydrogen detector and do discuss teach a system arranged such that the detector can be contacted with a known quantity of hydrogen gas to generate one signal and with a hydrogen-free gas to generate another signal, as claimed in the present application.

Regarding Ono et al., they teach contacting a detector with a reference hydrogen gas. The Office Action assumes that the "reference hydrogen gas" has a known quantity of hydrogen. The Office Action states that Ono et al. teach "flowing other concentrations known concentrations of hydrogen gas with a non-hydrogen gas (equivalent to the hydrogen free gas mixed with hydrogen in the instant application)" [*sic*]. (Office Action, page 3) However, it is not explained how the "other concentrations" are "known concentrations". The "other concentrations" appear to be the sample gas, but since the sample gas is the concentration they appear to be determining, it is not "known". Even when mixed with the carrier gas, the gas introduced to the detector does not have a "known concentration" as suggested in the Office Action. From the abstract provided, Ono et al. appear to determine a hydrogen concentration of a sample gas using a signal obtained using a reference hydrogen gas and a formula. They do not teach all of the elements of the calibrating element of the present claims.

Hence, there is no teaching or motivation to combine Ono et al. with Andrews et al. For example, there is no teaching that the system of Andrews et al. has a "reference gas metering device" to introduce reference gas to the detector. Additionally, even if the teaching of Andrews et al. is combined with Ono et al., the combination would not render the present claims obvious. The present claims comprise steps that are not taught in Andrews et al. or Ono et al. For example, these references at least fail to teach calibrating the hydrogen detector based upon a first signal and a second signal.

Regarding the dependent claims, it is further noted that neither reference teach the details of the dependent claims. For example, the production of electricity with a system comprising a process that uses the present calibration process is not taught or obvious. It is also not obvious to have the gases at about ambient pressure.

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No *prima facie* case of obviousness has been established. Reconsideration and withdrawal of this rejection are respectfully requested.

It is believed that the foregoing amendments and remarks fully comply with the Office Action and that the claims herein should now be allowable to Applicants. Accordingly, reconsideration and withdrawal of the rejection and allowance of the case are respectfully requested.

If there are any additional charges with respect to this Amendment or otherwise, please charge them to Deposit Account No. 06-1130.

Respectfully submitted,

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